REMARKS

Claims 1-3 and 5-7 are pending. Claims 1-3, 5 and 6 have been amended. No new matter has been presented.

Claims 1 and 2 are rejected under 35 USC 103(a) as being unpatentable over Khan, U.S. Patent No. 5,192,987, in view of Yamashita, U.S. Patent No. 6,995,397. This rejection is respectfully traversed.

The Examiner asserts that Khan teaches all of the features recited in claim 1 except the n-type delta doped GaN layer interposed between the undoped AIN layer and the undoped GaN layer. The Examiner asserts that Yamashita teaches this feature and that it would have been obvious to modify Khan in view of Yamashita because Yamashita discloses (in the abstract) that the electric field in the surface regions is weakened, thereby allowing the current drive force to increase. Applicant respectfully submits that there would have been no motivation to modify Khan to provide an claimed n-type delta doped GaN layer interposed between the undoped AIN layer and the undoped GaN layer. Further, applicant submits that the Examiner is picking and choosing various elements of the cited references in an attempt to recreate the claimed invention in hindsight.

Yamashita discloses a channel layer 20 which includes a high-concentration delta doped layer 21 in its deeper portion (abstract). Yamashita teaches that since layer 21 is in the deeper portion of the channel layer, the electric field in the surface region of the channel layer is weakened, thereby allowing the current driving force to increase (abstract). Yamashita does not teach or suggest that including a n-type delta doped GaN layer between an undoped AIN layer and an undoped GaN layer realizes this result. Rather, this result is owed to the fact that the high-concentration delta doped layer 21 in the deeper portion of the well layer. Thus, at best, one of ordinary skill would have been motivated by the teachings of Yamashita to include a high-concentration delta doped layer 21 in the deeper portion of a well layer, but not to provide an n-type delta doped GaN layer between an undoped AIN layer and an undoped GaN layer.

Further, Khan discloses a HEMT of AlGaN/GaN type, whereas Yamashita discloses a MISFET. The δ doped layer 21 of Yamashita is included in a part of the channel layer 20. Because the HEMT is not provided with a "channel layer," one of ordinary skill in the art would not have been motivated to incorporate the δ doped layer 21 of Yamashita into the HEMT as disclosed in Khan.

Furthermore, the invention claimed in claim 1 intends to reduce the 2HG generated due to discontinuity of the electric field at the heterojunction in the HEMT. However, Yamashita does not disclose nor teach reducing the 2HG in the HEMT.

For at least the reasons stated above, one of ordinary skill in the art would not have been motivated to modify Khan in view of Yamashita to achieve the claimed invention. Accordingly, applicant requests that this rejection be withdrawn.

Claim 3 is rejected under 35 USC 103(a) as being unpatentable over Khan, in view of Yamashita, as applied to claims 1 and 2, and further in view of Phillips, U.S. Patent No. 6,770,902. This rejection is respectfully traversed.

Claim 3 depends from claim 1. Since there would have been no motivation to modify Khan in the manner suggested by the Examiner, applicant requests that this rejection be withdrawn.

Claims 5 and 6 are rejected under 35 USC 103(a) as being unpatentable over Khan in view of Yamashita, as applied to claims 1 and 2, and further in view of Inoue, U.S. Patent No. 6,639,255. This rejection is respectfully traversed.

Claims 5 and 6 depend from claim 1. Since there would have been no motivation to modify Khan in the manner suggested by the Examiner, applicant requests that this rejection also be withdrawn.

Claim 7 is rejected under 35 USC 103(a) as being unpatentable over Khan in view of Yamashita, as applied to claims 1 and 2, and further in view of Abrokwah, U.S. Patent No. 5,895,929. This rejection is respectfully traversed.

Claim 7 depends from claim 1. Since there would have been no motivation to modify Khan in the manner suggested by the Examiner, applicant requests that this rejection be withdrawn.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 204552031600.

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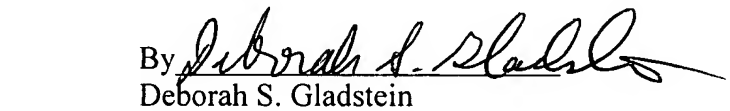
Respectfully submitted,

By 

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